

What is claimed is:

1 1. A method for transmitting a route request for a route between a source
2 node and a destination node in an *ad-hoc* network and for transmitting a reply identifying the
3 route, the *ad-hoc* network including a plurality of nodes including at least one master node in
4 at least one piconet, said method comprising:

5 transmitting the route request from the receiving node in the *ad-hoc* network to
6 the at least one master node of said at least one piconet via a unicast transmission; and

7 generating a route reply and sending the route reply to the source node, the
8 route reply identifying the route in the *ad-hoc* network between the source node and the
9 destination node.

1 2. The method of claim 1, wherein the route request is received by the
2 receiving node from another node in the at least one piconet.

1 3. The method of claim 1, wherein the route request is generated within the
2 receiving node.

1 4. The method of claim 1, further comprising the steps of:

2 (a) determining, before said step of transmitting, whether the route request
3 has been previously received at the receiving node; and

4 (b) ignoring the route request if it is determined in said step (a) that the route
5 request has been previously received at the receiving node.

1 5. The method of claim 4, wherein the route request is received by the
2 receiving node from another node in the at least one piconet.

1 6. The method of claim 4, wherein the route request is generated within the
2 receiving node.

1 7. The method of claim 1, further comprising the steps of:

2 (a) determining, before said step of transmitting, whether the receiving node
3 is a master node; and

4 (b) determining whether the destination node is in the piconet of the
5 receiving node if it is determined in said step (a) that the receiving node is a master node,

6 wherein said step of generating a route reply and sending the route reply to the
7 source node is performed if it is determined in said step (b) that the destination node is in the
8 piconet of the node, and said step of transmitting is performed if it is determined in said step
9 (b) that the destination node is not in the piconet of the receiving node.

1 8. The method of claim 7, further comprising the step of adding the
2 receiving node to a route list of a packet containing the route request before said step of
3 generating a route reply if it is determined in said step (b) that the destination node is in the
4 piconet of the receiving node.

1 9. The method of claim 1, further comprising the steps of:

2 (a) determining, before said step of transmitting, whether the receiving node
3 is a master node; and

4 (b) determining whether the receiving node is participating in multiple
5 piconets if it is determined in said step (a) that the receiving node is not a master node,

6 wherein said step of transmitting the route request to a master node of the
7 receiving node includes transmitting the route request if it is determined in said step (b) that the
8 receiving node is not participating in multiple piconets.

1 10. The method of claim 9, further comprising the step:

2 (c) determining whether the destination node is in the piconet of the master
3 node of the receiving node after said step (b),

4 wherein said step of generating a route reply and sending the route reply to the
5 source node includes generating and sending the route reply if it is determined in said step (c)
6 that the destination node is in the piconet of the master node of the receiving node, and said
7 step of transmitting the route request includes transmitting the route request if it is determined
8 in said step (c) that the destination node is not in the piconet of the master node of the
9 receiving node.

1 11. The method of claim 10, wherein the step of transmitting the route
2 request comprises transmitting the route request to master nodes in piconets other than the
3 piconet from which the route request was received if it is determined in said step (b) that the
4 receiving node is participating in multiple piconets.

1 12. The method of claim 11, further comprising the steps of:
2 (i) determining, before performing said step (a), whether the route request
3 has been previously received at the receiving node; and
4 (ii) ignoring the route request if it is determined in said step (i) that the route
5 request has been previously received at the receiving node.

1 13. The method of claim 1, further comprising the steps of:
2 (a) determining, before said step of transmitting, whether the receiving node
3 is a master node; and
4 (b) determining whether the receiving node is participating in multiple
5 piconets if it is determined in said step (a) that the receiving node is not a master node,
6 wherein said step of transmitting the route request includes transmitting the
7 route request to master nodes in piconets other than the piconet from which the route request
8 was received if it is determined in said step (b) that the receiving node is participating in
9 multiple piconets.

1 14. A device-readable memory for a communication device, the memory
2 storing device-readable instructions for transmitting a route request in an *ad-hoc* network and
3 for generating a route reply identifying the route, the route request being one of received at
4 and generated by the communication device for a route between a source node and a
5 destination node in the *ad-hoc* network, the *ad-hoc* network including a plurality of nodes
6 including the communication device and at least one master node in at least one piconet, said

7 memory comprising device-readable instructions for transmitting the route request from the
8 communication device in the *ad-hoc* network to the at least one master node of the at least one
9 piconet via a unicast transmission and for generating a route reply and sending the route reply
10 to the source node, the route reply identifying the route in the *ad-hoc* network between the
11 source node and the destination node.

1 15. The memory of claim 14, further comprising device-readable instructions
2 for determining whether the route request has been previously received at the communication
3 device before transmitting the route request and for ignoring the route request if it is
4 determined that the route request has been previously received at the communication device.

1 16. The memory of claim 14, further comprising device-readable instructions
2 for determining whether the communication device is a master node before transmitting the
3 route request and for determining whether the destination node is in the piconet of the
4 communication device if it is determined that the communication node is a master node,
5 wherein said device-readable instructions for generating a route reply and sending the route
6 reply to the source node include instructions for generating and sending the route reply if it is
7 determined that the destination node is in the piconet of the communication device, and said
8 device-readable instructions for transmitting the route request include instructions for
9 transmitting the route request if it is determined that the destination node is not in the piconet
10 of the communication device.

1 17. The memory of claim 16, wherein said device-readable instructions for
2 generating a route reply further include device-readable instructions for adding the
3 communication device to a route list of a packet containing the route request before sending the
4 route reply if it is determined that the destination node is in the piconet of the communication
5 device.

1 18. The memory of claim 14, further comprising device-readable instructions
2 for determining, before transmitting the route request, whether the communication node is a
3 master device and for determining whether the communication device is participating in
4 multiple piconets if it is determined that the communication device is not a master node,
5 wherein said device-readable instructions for transmitting the route request include instructions
6 for transmitting the route request to a master node of the communication device if it is
7 determined that the communication device is not participating in multiple piconets.

1 19. The memory of claim 18, further comprising device-readable instructions
2 for determining whether the destination node is in the piconet of the master node of the
3 communication device, wherein the device-readable instructions for generating a route reply
4 and sending the route reply to the source node include instructions for generating and sending
5 the route reply if it is determined that the destination node is in the piconet of the master node
6 of the communication device, and said device-readable instructions for transmitting the route
7 request include instructions for transmitting the route request if it is determined that the
8 destination node is not in the piconet of the master node of the communication device.

1 20. The memory of claim 19, wherein said device-readable instructions for
2 transmitting the route request include instructions for transmitting the route request to master
3 nodes in piconets other than the piconet from which the route request was received if it is
4 determined that the communication device is participating in multiple piconets.

1 21. The memory of claim 20, further comprising device readable instructions
2 for determining whether the route request has been previously received at the communication
3 device before determining whether the communication device is a master node, and for
4 ignoring the route request if it is determined that the route request has been previously received
5 at the communication device.

1 22. The memory of claim 14, further comprising device-readable instructions
2 for determining, before transmitting the route request, whether the communication device is a
3 master node and for determining whether the communication device is participating in multiple
4 piconets if it is determined that the communication device is not a master node, wherein said
5 device-readable instructions for transmitting the route request include instructions for
6 transmitting the route request to master nodes in piconets other than the piconet from which the
7 route request was received if it is determined that the communication device is participating in
8 multiple piconets.

1 23. A wireless communication device for transmitting a route request for a
2 route between a source node and a destination node in an *ad-hoc* network and for generating a

3 route reply identifying the route, the route request being one of received at and generated by
4 the device, wherein the *ad-hoc* network includes a plurality of nodes including the device and
5 at least one master node in at least one piconet, said device comprising a transceiver and a
6 memory storing device-executable instructions for transmitting the route request to the at least
7 one master node of the at least one piconet via a unicast transmission and for generating a route
8 reply and sending the route reply to the source node, the route reply identifying the route in the
9 *ad-hoc* network between the source node and the destination node.

1 24. The device of claim 23, wherein said transceiver comprises a Bluetooth
2 radio.

1 25. The device of claim 23, further comprising a protocol stack including a
2 network layer and a link layer, said device-executable instructions comprising a part of said
3 network layer.

1 26. The device of claim 25 wherein said network layer comprises a network
2 block comprising device-executable instructions for *ad-hoc* networking, said device-executable
3 instructions for transmitting the route request comprising a part of said device-executable
4 instructions for *ad-hoc* networking.

1 27. The device of claim 23, further comprising a protocol stack including a
2 network layer and a link layer, said device executable instructions comprising a part of said
3 link layer.

1 28. The device of claim 27, wherein said link layer comprises a Bluetooth
2 driver with a personal area network profile, said device-executable instructions comprising a
3 part of said personal area network profile.

1 29. The device of claim 23, wherein said memory further comprises device-
2 readable instructions for determining whether the route request has been previously received at
3 the communication device before transmitting the route request and for ignoring the route
4 request if it is determined that the route request has been previously received at the
5 communication device.

1 30. The device of claim 23, wherein said memory further comprises device-
2 readable instructions for determining whether the communication device is a master node
3 before transmitting the route request and for determining whether the destination node is in the
4 piconet of the communication device if it is determined that the communication device is a
5 master node, wherein the device-readable instructions for generating a route reply and sending
6 the route reply to the source node include instructions for generating and sending the route
7 reply if it is determined that the destination node is in the piconet of the communication node,
8 and said device-readable instructions for transmitting the route request include instructions for
9 transmitting the route-request if it is determined that the destination node is not in the piconet
10 of the communication node.

1 31. The device of claim 30, wherein said device-readable instructions for
2 generating a route reply further include device-readable instructions for adding the
3 communication device to a route list of a packet containing the route request before sending the
4 route reply if it is determined that the destination node is in the piconet of the communication
5 device.

1 32. The device of claim 23, wherein said memory further comprises device-
2 readable instructions for determining, before transmitting the route request, whether the
3 communication device is a master node and for determining whether the communication device
4 is participating in multiple piconets if it is determined that the communication device is not a
5 master node, wherein said device-readable instructions for transmitting a route request include
6 instructions for transmitting the route request to a master node of the communication device if
7 it is determined that the communication device is not participating in multiple piconets.

1 33. The device of claim 32, wherein said memory further comprises device-
2 readable instructions for determining whether the destination node is in the piconet of the
3 master node of the communication device, wherein said device-readable instructions for
4 generating a route reply and sending the route reply to the source node include instructions for
5 generating and sending the route reply if it is determined that the destination node is in the
6 piconet of the master node of the communication device, and said device-readable instructions
7 for transmitting the route request include instructions for transmitting the route request if it is

8 determined that the destination node is not in the piconet of the master node of the
9 communication device.

1 34. The device of claim 33, wherein said device-readable instructions for
2 transmitting the route request include instructions for transmitting the route request to master
3 nodes in piconets other than the piconet from which the route request was received if it is
4 determined that the communication device is participating in multiple piconets.

1 35. The device of claim 34, wherein said memory further comprises device-
2 readable instructions for determining whether the route request has been previously received at
3 the communication device before determining whether the communication device is a master
4 node, and for ignoring the route request if it is determined that the route request has been
5 previously received at the communication device.

1 36. The device of claim 23, wherein said memory further comprises device-
2 readable instructions for determining, before transmitting the route request, whether the
3 communication device is a master node and for determining whether the communication device
4 is participating in multiple piconets if it is determined that the communication device is not a
5 master node, said device-readable instructions for transmitting a route request including
6 instructions for transmitting the route request to master nodes in piconets other than the piconet
7 from which the route request was received if it is determined that the communication device is
8 participating in multiple piconets.

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1 37. The device of claim 23, wherein said device comprises a mobile phone.

1 38. The device of claim 23, wherein said transceiver is operable for
2 communication via a Bluetooth protocol.